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ABSTRACT

Two issues of this listing (August and September 1990) contain reviews of courseware for kindergarten through grade 12. Entries are classified by subject or application: communication skills, which include instruction in reading and writing; mathematics; microcomputer programing; science; social studies; and utilities (desktop publishing software). Information on each software package includes the title, publisher, copyright date, price, package contents, equipment required, suggested grade level, and program goals. This is followed by a detailed summary, a discussion of major strengths and weaknesses, and a statement of recommended uses. The table of contents of each issue provides an annotated list of the software packages reviewed in that issue. (DB)

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Advisory List of

Computer Courseware

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Media Evaluation Services
Department of Public Instruction

August 1990
Raleigh, North Carolina

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COMMUNIKEYS. MECC 2
Communication Skills Grades 3-7
COMMUNIKEYS incorporates keyboarding drill and practice into language arts based activities.

LETTERS, PICTURES & WORDS WITH THE BOARS! Pelican Software, Inc. 4
Communication Skills Grades K-1
LETTERS, PICTURES & WORDS WITH THE BOARS! provides drill-and-practice activities in letter recognition and beginning sounds.

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SEEN: TUTORIALS FOR CRITICAL READING offers six activities that shape student response through questions, writing, and peer review.

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ZERO IN ON ZERO: ADDITION AND SUBTRACTION. DLM Teaching Resources. 8
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Students practice computing whole number math problems that include zeros with ZERO IN ON ZERO: ADDITION AND SUBTRACTION.

LOGOWRITER SECONDARY. LCSI 9
Programming Grades 7-12
LOGOWRITER SECONDARY offers an enhanced LOGO environment supported by project booklets with activities that incorporate text, graphics, math operations, animation, and music.

BIOSOLVE: INTERNAL MEDICINE. D. C. Heath and Company 11
Science Grades 9-12
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GENETICS PROBLEM SHOP. EME 12
Science Grades 9-12
The GENETICS PROBLEM SHOP allows biology teachers to create genetic cross problems with up to three traits and corresponding solutions.

THE HUMAN BODY & HOW IT WORKS: THE SKELETAL & MUSCULAR SYSTEMS.
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Science Grades 4-6
THE SKELETAL & MUSCULAR SYSTEMS concentrates on bones, joints, and muscles in the human body.

IR014680

COMMUNICATION SKILLS

Title: COMMUNIKEYS
Publisher: Minnesota Educational Computing Corporation
3490 Lexington Avenue North
St. Paul, MN 55126
Copyright: 1989 (released 1990)
Price: $59.00
Contents of package: 1 program disk, 1 backup disk, guide 40 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer, 1 disk drive, monitor, printer (preferred)
Grade level: 3-7
Goals: Communication Skills Grade 3 Writing CG 1, 2, 4, 6, and 8
Communication Skills Grades 4-7 Writing CG 1 and 2

COMMUNIKEYS incorporates keyboarding drill and practice into language arts based activities. The program begins with a quick overview of proper hand positioning and posture. Lessons are dedicated to practicing keyboard characters and feature groups of keys such as a, s, i, f, and t in lesson 1 and l, e, k, and r in lesson 2. Characters are introduced according to their frequency of use rather than by finger position. Students are given letters, words, and sentences to practice typing. After being introduced to each key and practicing, students see their words per minute rating and their accuracy score along with an encouraging comment. Students are urged to practice for speed and not be too concerned with errors. If errors become too frequent, students are asked to slow down, think about the letters being typed, and keep their fingers on the home row. Students are also asked to say to themselves the letters being typed. As students successfully work through keyboarding lessons, the program begins to reveal parts of a scientific expedition. For example, students learn the expedition's name, where the research will be done, what will be studied, and what activities will be completed by the expedition.

As students master the drill and practice lessons, the program grants them access to activities that are based on the expedition. The activities are designed to offer opportunities to engage in prewriting and writing, thereby providing integration with language arts. Several activities are made available to students after a specified number of lessons are mastered. The first activity to appear is the "Scratch Pad," a word processor that allows students to type up to fifteen lines of text on the screen. Students can write about the expedition or any other topic. Any activity in which the student writes text can be printed. The next activity is "BBox," which provides practice with sequence and visual memory in a format similar to that of the popular "Simon" game. Six boxes appear on the screen with a keyboard character in the middle of each. One of the six boxes flashes, and a musical tone is sounded. Students must type the key that corresponds to that box. In the next round another box flashes and another tone sounds. Students must then match the first and second boxes as they type in the sequence. Another box is added to the prior boxes in subsequent rounds, and students must reproduce the pattern presented by the program in each round by typing the appropriate keys. "Odd One Out" is a sorting and classifying activity. The program lists five words and asks students to type all the words that belong together. If the words are typed incorrectly or the wrong combination of words is typed, the correct order appears on the screen. In "Scramble" a well-known proverb appears on the screen with the words out of order. The capital letter and punctuation give students a hint about the correct

arrangement of the sentence. Students must type the sentence correctly. If they make a mistake in word order or typing, they are shown the proverb in the correct order and asked to type it again. "List Maker" is a prewriting activity. The program suggests several topics about which lists could be made, such as places to visit, things to do, spelling words, books, and information about the users' current expedition. By selecting the subheading "My List," students can create a list about a topic of their choice. "Passport" permits students to enter their name, city, telephone number, and identification number as well as list their interests. In "Letter" students write someone a letter. The program asks for the date, the recipient's name, and the form of closing, such as "Yours truly" and "Sincerely." Students can then type the body of the letter. "What Can It Be?" presents writing topics that use the expedition as a springboard (for example, the question "What if the Traders of the Mayan Coast were a rock group, a scary movie, or a song on the radio. . ."). "Stories" suggests story titles intended to spark creative writing. "Starters" presents incomplete sentences (story starters) as prompts to encourage students to write.

A teacher management section allows the program to be customized to meet the needs and abilities of students. Teachers can adjust the mastery level from five to forty words per minute and the accuracy goal (number of errors allowed in a lesson) from one to four word errors. Vocabulary can be switched from "normal" (third to fourth grade) to "advanced" (fifth and sixth grade). The number of times students must meet or exceed speed and accuracy goals in order to master lessons can also be changed. From the teacher management section, student scores can be viewed, printed, or deleted.

The guide gives a detailed description of every facet of the program from content to management. Included are program objectives and a rationale for the use of the whole language approach. The guide provides masters for a keyboard facsimile sheet for student use and a letter to send to parents suggesting that students be allowed to practice on the home computer or typewriter. A source of further information about the scientific expeditions, which are based on real Earth Watch research projects, is found in the appendix.

WEAKNESSES: When students make an error in the "Scramble" activity, the program asks them to type the proverb correctly. However, if they make a typing mistake while entering the proverb the second time, the program ignores it and proceeds to another proverb.

STRENGTHS: With some forethought and organization, this program can be incorporated into the language arts and social studies programs. Spelling/ vocabulary words can be used to practice typing with "Scratch Pad," "List Maker," or "Story." "List Maker" can be used for a prewriting activity and "Scratch Pad" and "Story" as limited word processors. If students have not used word processors previously, this can be a good introduction.

USES: The COMMUNIKEYS program is a useful tool for students in grades three through seven who would benefit from keyboarding practice. The program's emphasis on language arts integration will help busy teachers address two sets of skills simultaneously. Students should have regularly scheduled time to spend on the program, and exposure should be consistently scheduled over the course of the school year.

* * *

Title: LETTERS, PICTURES & WORDS WITH THE BOARS!
Publisher: Pelican Software, Inc.
768 Farmington Avenue
Farmington, CT 06032
Copyright: 1989
Price: $39.95
Contents of package: 1 program disk (3.5"), 1 program disk (5.25"), 1 backup disk (5.25"), guide 11 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer (128 K), 1 disk drive, monitor (color preferred)
Grade level: K-1
Goals: Communication Skills Grade K Reading/Literature CG 1 and 10
Communication Skills Grade 1 Reading/Literature CG 1, 10, and 20

LETTERS, PICTURES & WORDS WITH THE BOARS! provides drill-and-practice activities in letter recognition and beginning sounds. The Boar family, whose members are cartoonlike anthropomorphized animal characters, is featured throughout the program, which is separated into two levels with one activity on the first level and three activities on the second. On the first level the program shows one of fourteen animated scenes featuring members of the Boar family. These scenes include the Boars sitting in their living room, tending their garden, and looking out of their gingerbreadlike house. At the bottom of the screen, below the scene, a single letter appears. Binkle, the on-screen mascot, appears and points at an object in the scene that starts with the same letter/sound as the letter at the bottom of the screen. For example, Binkle points at the roof for the letter R, a pail for the letter P, and a hot dog for the letter H. Students match the letter on the screen to a letter on the computer's keyboard. When they answer correctly, the entire word is spelled out on the screen, and the scene becomes animated with members of the Boar clan moving about to the sound of music played by the computer. Sound accompanies all the activities and is optional. In all of the activities the computer responds only to correct answers. Level two activities feature the Boar family scenes, animation, and music. In "Begins With?" Binkle points to an object on the screen, and students must choose the one of the four letters at the bottom of the screen that matches the beginning sound of the object's name. As with all of the activities, this one continues until the escape key is pressed, returning the user to the main menu. The second activity at level two is "Where Is It?" Students are asked to move Binkle to the object whose name begins with the letter shown at the bottom of the screen. The third activity ("Find It!") shows an entire word at the bottom of the screen and students must move Binkle around the scene to choose the corresponding object.

Documentation includes a description of each menu choice, an explanation of how each activity operates, and sample screens from the activities. The guide gives teachers a one-sentence explanation of how to use the program in "Language Development and Whole Language" and "Visual Memory Skills." The six-sentence "Teacher Suggestion" section lists possible classroom uses. The guide also includes a single, reproducible picture of the Boar family (in coloring book style) and lists the ninety-six nouns used in the program.

WEAKNESSES: The program features loud music as feedback for correct answers. While students may like the simple jingle, teachers and classmates will find it distracting. Fortunately, the music can be turned off. The program keeps no record of work done. Some objects may be difficult for students to recognize.

For example, nails matched in the "Begins With?" activity are almost invisible on the screen. Students must guess that the objects are nails based on the context of other objects in the scene--in this case a hammer and boards in a workshop setting. The very brief guide does little to help teachers prepare to use the program in class.

STRENGTHS: The program's colorful, screen-filling graphics and animation will motivate students needing extra practice in beginning sounds and phonics.

USES: LETTERS, PICTURES & WORDS WITH THE BOARS! provides practice with letter recognition, beginning consonant sounds, and word recognition. The program is most appropriately used in first and second grade as reinforcement and enrichment. Students can use the program independently after instruction from teachers.

* * *

Title: SEEN: TUTORIALS FOR CRITICAL READING
Publisher: Conduit
The University of Iowa
Oakdale Campus
Iowa City, IA 52242
Copyright: 1989
Price: $85.00
Contents of package: 1 start-up disk (3.5"), 1 program disk (3.5"), 1 backup disk, guide 95 p.
Systems (* indicates version previewed): Apple II family, IBM-PC*, IBM PS/2
Equipment required: microcomputer, 1 disk drive, monitor (color graphics or monochrome adapter required for IBM version), printer (preferred), blank disk (preferred)
Grade level: 9-12
Goals: Comm. Sk. English I Literature/Reading/Study Skills CG 5-7
Writing CG 1
English II-IV Literature/Reading/Study Skills CG 4-6
Writing CG 1
Social Studies Grades 9-11 Skills CG 1 and 4
Arts Education Grades 9-12 Visual Arts I-III CG 4

SEEN: TUTORIALS FOR CRITICAL READING offers six activities that shape student response through questions, writing, and peer review. The tutorials focus on analyses of essays, characters in literature, plot, a work of art, and a historical conflict as well as general exploration of a literary work. Teachers can modify the tutorials or create new ones. On-screen bulletin boards for each tutorial display responses and comments by other students. In the character analysis tutorial, students select a character in a literary work, state their impressions of the character, present supporting evidence based on the person's actions and words as well as on the reactions of others, comment on changes in the character, and draw conclusions. In the historical conflicts tutorial, students focus on a conflict, name the two opposing groups, outline the origins and turning point of the situation, comment on the effects of the dispute on each of the opposing groups, and summarize the significance of the event. The other tutorials have a similar analytical approach and contain a combination of information frames, short response items (such as author and title of an article), and open-ended questions. Students use pull-down menus and shortcut

keys and can access several kinds of help, including advice prompts for each frame as well as general program information. Students' answers are incorporated in the wording of subsequent questions. The screen display for each frame includes a question block and the notepad (a writing area with size dependent on question type). Students' responses become "Ideafiles" that can be posted on the tutorial's bulletin board for examination by other students or saved (in the program's notepad format, as ASCII files, or in one of several word processing formats for more extensive writing). Teacher options include records management functions (editing student enrollment lists, designating access to tutorials, reviewing and printing the log of student activity, and creating new bulletin board groups) as well as modification and creation of tutorials. The manual includes a program overview and introductory activity, suggestions for use (in classroom or lab settings), a section on changing or creating tutorials, appendices (including tutorial scripts, command summaries, and forms for creating new frames), and a bibliography.

WEAKNESSES: Reviewers found no significant weaknesses.

STRENGTHS: This program has a sound pedagogical base and offers an integrated approach to reading, writing, and thinking skills. It helps students learn to read critically by building on their initial responses in a structured yet flexible framework that also guides them through the conventions of analytical writing tasks. The bulletin board option facilitates peer review and would be appropriate in a reading/writing workshop environment. The guide provides excellent support for using the program in a variety of ways, and the authoring component makes program content adaptable to different levels and subject areas.

USES: SEEN: TUTORIALS FOR CRITICAL READING supports reading and writing objectives in English language arts as well as more general thinking skills goals across the curriculum. Students will benefit most if they have word processing experience and sufficient access to computers. Creating new tutorials offers much potential but requires careful planning as outlined in the guide.

* * *

MATHEMATICS

Series Title: IBM ALGEBRA
Title: ALGEBRA II: PART 1
Publisher: IBM
P.O. Box 2150
Atlanta, GA 30055
Copyright: 1988 (released 1989)
Price: $216.00
Contents of package: 1 program disk (3.5") and 4 program disks (5.25"), guide approx. 150 p.
Systems (* indicates version previewed): IBM-PC*
Equipment required: microcomputer, 1 disk drive, monitor (color preferred), printer (optional)
Grade level: 10-12
Goals: Algebra II Grades 10-12 CG 1-10

ALGEBRA II: PART 1 provides three units with structured interactive lessons and exploratory activities that encourage students to conceptualize and solve problems using the program's CALC options for calculation, symbol manipulation (such as simplification), and function plotting. Lessons in Unit One, Linear Equations and Matrices, cover solving systems of equations through graphing, algebra, and matrices. Lessons in Unit Two, Quadratic Functions, focus on graphs (in terms of evaluating, plotting, and roots and factors) and equations (for circles, ellipses, hyperbolas, and parabolas). Unit Three, Polynomial and Rational Functions, includes complex numbers, graphing polynomials, and finding their roots. Each unit includes an introduction; two or more "expository" activities in which students see, apply, and review concepts; an "Exploration" in which students use CALC options; and a group of word problems. The program is designed for, but does not require, sequential movement through the units and lessons. Students use menus and function keys (for help, to skip a problem, to access CALC, or to return to the menu) and can make two attempts before the program supplies the answer. If users answer three problems in a row correctly, they move automatically to the next activity. The CALC commands (in nine categories including algebra, graphing, matrix operations, and calculus) facilitate and expedite calculations and problem-solving steps. The CALC display is a screen overlay with three windows (for expressions, text, or function plotting) and three line areas (for prompts, commands, and messages). Teachers can create customized "Defer Sequence" files for demonstrations or special problem sets. Other teacher options provide access to the user list with each student's bookmark code (unit, lesson, and activity last completed), number of activities completed, and total amount of time taken. The user list can be printed, specific activities can be assigned by changing the bookmark code, and other program options (such as printing scores or erasing names) can be opened or closed to students.

The guide contains a series and program overview, program description, explanation of the numerous CALC options (showing function, format, and use of each command), and instructions on the creation and use of defer sequences. The appendices include a summary of error messages, technical reference, teaching ideas, and a glossary.

WEAKNESSES: Reviewers found no significant weaknesses.

STRENGTHS: The CALC feature requires students to think and selectively apply concepts without being hindered by time-consuming calculation or plotting (e.g., letting the user graph a logarithmic function while scaling axes to include interesting points). "Think" screens emphasize the value of mathematics as communication by asking students to summarize the main point of the lesson. Technical quality is excellent, with clear images, attractive color, and smooth graphing.

USES: ALGEBRA II: PART 1 presents the core of most second-year algebra curricula. It is appropriate for classroom demonstration, curriculum enrichment, or remediation.

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Series Title: ZERO IN ON ZERO
Title: ZERO IN ON ZERO: ADDITION AND SUBTRACTION
Publisher: DLM TEACHING RESOURCES
P.O. Box 4000
One DLM Park
Allen, Texas 75002
Copyright: 1990
Price: $46.00
Contents of package: 2 double-sided program disks, poster (reverses to 3 reproducible certificates and clip art in blackline master form), guide 26 p.
Systems (* indicates version previewed): Apple II family*, IBM-PC, IBM PS/2
Equipment required: microcomputer, 1 disk drive, monitor (color preferred), printer (preferred)
Grade level: 1-5
Goals: Mathematics Grades 1-5 CG 2

Students practice computing whole number math problems that include zeros with ZERO IN ON ZERO: ADDITION AND SUBTRACTION. Addition and subtraction problems are located on separate disks. Prior to student use of either disk, teachers make choices to define the difficulty and number of problems that will be presented. Options for addition are two to four addends; one to six digits in the first addend; zero to six regroupings per problem; and five, ten, or fifteen problems per group. Subtraction selections are one to six digits in the minuend; zero to five regroupings per problem; and five, ten, or fifteen problems per session. Whichever disk students use, the program presents a problem following the title screen. An active, cheery character, "Zero," presides over the problem screens. Legs and arms have been added to a three-dimensional zero that serves as a head and body. Students answer problems from right to left and have two chances to try before the correct answer is presented. For problems that include regrouping, prompts are placed in smaller numerals above the top addend or the minuend before users enter their second answer attempt. Students can also request help after the first error. Addition help displays two sets of objects at the top of the screen representing each digit in the column of numbers to be added next in the problem. Subtraction help displays a set of objects representing the portion of the minuend to be subtracted from next, followed by slashes appearing in the objects representing the number in the corresponding column of the subtrahend. Once users complete the group of problems, they receive a score and are asked if they would like to save it. A brief presentation of Zero performing circus stunts for addition and sports feats for

subtraction is presented as a reward. The duration of Zero's antics increases slightly with better scores. Records of student progress, which can be viewed on the screen or printed, consist of the date, score, and numbers that indicate the choices teachers made in defining the problems. In addition, teachers can print worksheets that conform to the criteria they have selected for the problems on the screen. Teachers request problems to be displayed horizontally, vertically, or in a combination of both. The guide describes the program, operation, and teacher options.

WEAKNESSES: The reward segments do not relate to math. Teachers cannot view worksheets before they are printed. The numerals printed and the spaces left for answers are too small for primary students.

STRENGTHS: Help offered to students is useful and presented in an appealing format. The colorful, lively screens will encourage program use. The program is simple to operate, options are easily changed, and worksheets are quickly generated.

USES: ZERO IN ON ZERO is useful for individuals to practice or review addition and/or subtraction problems containing zeros. Older students needing remedial work in these areas will find the problems and help segments useful, but the reward animations may become tedious for some of them.

* * *

PROGRAMMING

Title: LOGOWRITER SECONDARY
Publisher: LCSI
330 West 58th Street
Suite 5D
New York, NY 10019
Copyright: 1989
Price: $169.00
Contents of package: 1 double-sided program/scrapbook disk, 5 project booklets, student "How To" booklet, "Teacher's Notes" booklet, technical reference notebook approx. 250 p.
Systems (* indicates version previewed): Apple II family*, IBM-PC
Equipment required: microcomputer, 1 disk drive, monitor (color preferred), printer (optional), blank disk
Grade level: 7-12
Goals: Thinking Skills Grades 7-12

LOGOWRITER SECONDARY offers junior and senior high school students an enhanced Logo environment (with programmable word processing and additional graphics features) supported by project booklets with activities that incorporate text, graphics, math operations, animation, and music. The project booklets build programming skills sequentially with open-ended activities that combine bottom-up and top-down approaches. Students create "scrapbook" files with a front page work area (split into a text/graphics screen area and a command center for running procedures) and a flip page for defining procedures and recording program code. The program disk includes the LogoWriter program, tools (for turtle graphics and movement, word processing, disk catalogs, and math operations), and

three learning segments that provide an interactive orientation to program commands. The scrapbook disk provides space for saving student-created pages. The "Welcome to Logowriter" booklet introduces word processing and reviews basic techniques and procedure definition. "Action!" provides three activities that focus on simple animation with multiple turtles and shapes, using procedures with inputs to make a city street scene, and linking pages with procedures (a subroutine concept) to make an on-screen slide show. "Special Effects" offers two projects. In one, students program a song with sound, animated graphics, and text based on a structured programming model that uses nested superprocedures and subprocedures. In the other, they make a "choose-your-own" adventure story with start-up and branching procedures. With "Building Your Own Games" students program racing and maze games using random numbers, recursion, conditional statements, and user input from the keyboard. The "Adventures" booklet introduces more complex activities in a castle adventure game (with tool procedures, global and local variables, list processing reporters, and user interaction) and a games menu that utilizes programmable word processing functions (such as search and select). A "How To" booklet serves as a student user manual with instructions for basic operations such as copying, erasing, programming special keys, and saving to disk. The "Teacher's Notes" booklet provides introductory information, a summary chart of the projects, general teaching considerations, and overviews for each project booklet that elaborate on programming emphases, anticipate student problems, and provide debugging tips. The package also includes a technical reference notebook.

WEAKNESSES: Reviewers found no significant weaknesses.

STRENGTHS: Projects are flexible and interesting enough to accommodate the inevitably different programming styles and skill levels that students will display. Programming activities require critical thinking and demystify some aspects of computer operation. LogoWriter is adaptable across the curriculum and appropriate for collaborative learning. The scrapbook page approach offers a friendly and effective visual framework for separating the text and graphics that are the products of programming, the command center for immediate execution, and the recording area for program code.

USES: LOGOWRITER SECONDARY supports programming and computer literacy objectives. Students and teachers who know LogoWriter can use it to enrich activities in many subject areas. The projects outlined in the booklets are appropriate for novices as well as students experienced with Logo. Teachers need to be thoroughly familiar with the projects and allow sufficient time for students to develop programs.

* * *

SCIENCE

Series Title: BIOSOLVE
Title: INTERNAL MEDICINE
Publisher: D. C. Heath and Company
2700 North Richardt Avenue
P.O. Box 19309
Indianapolis, IN 46219
Copyright: 1989
Price: $80.00
Contents of package: 1 program disk, 1 backup disk, 1 data disk, guide 19 p.
Systems (* indicates version previewed): Apple II family*, IBM-PC, IBM PS/2, IBM-PCjr
Equipment required: microcomputer, 1 disk drive, monitor, blank disk (preferred)
Grade level: 9-12
Goals: Science Grades 9-12 Biology CG 1 and 6
Health Occupations Education Grades 10-12 CG 17

In BIOSOLVE: INTERNAL MEDICINE students assume the roles of physicians, using interviews, medical tests and consultations, and a research database to arrive at diagnoses. The program offers two investigations: an easier one leading to a diagnosis of diabetes and a more difficult one leading to anorexia. Each problem presents an opening scenario after which the doctor makes a series of decisions that involve visits to treatment rooms and wards for interviews (with patients, families, or nurses) or chart readings, consultations with colleagues, medical lab tests, interpretation of results, and the eventual preparation of a diagnostic report. Numbered menu boxes on the screen provide access to the list of options available at any point in the investigation, the database, a progress chart that shows how close a student is to diagnosis, and the save function for investigations in progress. The eight database categories cover body fluids, physical disorders, infectious diseases, diagnostic tests, drugs, food poisoning, chemical poisons, and an index. Since each category has submenus, users have access to an extensive hierarchy of medical terms and information. Two reproducible worksheets enable students to record clues. A third worksheet presents two additional medical mysteries to be solved using only the database. The management option provides a roster of student work (with investigations attempted and program time spent). The guide provides an introduction, program description with screen facsimiles, a troubleshooting guide, suggestions for classroom use, and four reproducible masters.

WEAKNESSES: The program is slightly slow, and students will spend some time going in and out of the same loops. The data storage disk is cumbersome to use. There are only two diseases to diagnose.

STRENGTHS: This unusual program combines role-playing appeal with the information-rich nature of databases, thereby simulating the complexities of medical diagnosis and research. The program is structured to prevent haphazard guessing and requires students to use initiative and make decisions. Successful players think deductively and use the scientific method.

USES: BIOSOLVE: INTERNAL MEDICINE supports biology or health objectives and will especially interest students planning to pursue medical careers. Users should have some background in human anatomy, physiology, and medical terminology. The program provides effective reinforcement in these areas.

Creative instructors or interested students could devise other medical mysteries to be solved with the database.

* * *

Title: GENETICS PROBLEM SHOP
Publisher: EME
P.O. Box 2805
Danbury, CN 06813-2805
Copyright: 1989
Price: $50.00
Contents of package: 1 program disk, 1 backup disk, guide 8 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer, 1 disk drive, monitor, printer
Grade level: 9-12
Goals: Teacher utility

The GENETICS PROBLEM SHOP allows biology teachers to create genetic cross problems that involve plant or animal species with up to three traits and corresponding solutions that show all genotypes and phenotypes for first-generation offspring, genotypic and phenotypic ratios, and Punnett squares. The program provides nine problem formats that result from dominant/recessive combinations for one, two, or three gene pairs. Problems are stated in symbolic ("Cross Dd X Dd") or descriptive (word problem) form. On-screen instructions are available. Teachers can construct problem sets of one to ten items in three ways: by computer random selection of problems within user-set parameters for format and statement form; by teacher selection of form and format for each problem number; and by further selection of species (human, pea, or tomato), traits (such as height, seed color, or seed type for peas), and gene pair order for each parent. After creating a problem set, teachers can review or print the problems with or without their solutions. The brief guide offers suggestions for using the program, a menu overview, and instructions for creating and printing problem sets.

WEAKNESSES: The program provides no editing capability for revision of previously completed questions in problem sets. It offers limited warning that pressing the escape key erases prior work, and no problem sets can be saved.

STRENGTHS: This program is very easy to use and saves time for teachers. It can generate a wide range of problems. Teachers can also create alternative test forms of equivalent difficulty quickly and easily. Because solutions are thorough and clearly derived, they are useful learning tools for students.

USES: GENETICS PROBLEM SHOP is a helpful tool for biology instructors, who can use it to make classroom worksheets, homework problems, and tests. Special problem sets can be created for remedial purposes or for small group work.

* * *

Series Title: THE HUMAN BODY AND HOW IT WORKS
Title: THE SKELETAL & MUSCULAR SYSTEMS
Publisher: Troll Associates Inc.
100 Corporate Drive
Mahwah, NJ 07430
Copyright: 1989 (released 1990)
Price: $39.95
Contents of package: 1 program disk, guide 4 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer, 1 disk drive, monitor (color preferred)
Grade level: 4-6
Goals: Healthful Living Grade 5 Growth and Development CG 1
Science Grade 6 CG 2

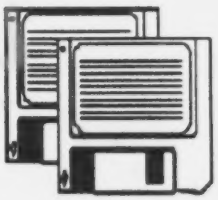
THE SKELETAL & MUSCULAR SYSTEMS concentrates on bones, joints, and muscles in the human body. Users choose one of six sections from a menu. Three sections, led by a googly-eyed professor, present information while the other three sections require students' responses. "Dr. Micro's Bone Lab" describes the general function and structure of bones. With the easy level of "Bones on Broadway" students review the common names of bones as they unscramble them. At the hard level scientific names are also unscrambled. "Dr. Micro's Joint Lab" introduces six types of body joints: fixed, pivot, partially movable, ball and socket, gliding, and hinge. "Name That Move," which correlates to the previous activity, shows a girl moving a part of her body. Users select from six joint types to identify the one that controls the girl's movement. For each joint choice an animated illustration accompanies its label. For example, the pivot joint is shown as a wheel that moves back and forth on an axle. "Dr. Micro's Muscle Lab" highlights the purpose and structure of muscles, including skeletal, smooth, and cardiac muscles. "Medical Alert" challenges users to group vocabulary covered previously in any section of the program by topic. The game format offers four difficulty levels. The guide sheet explains how to operate the program and briefly describes the six sections.

WEAKNESSES: Student progress is not recorded. Teachers would appreciate a more extensive guide that might provide specifics about the information included (e.g., listing the bones mentioned in "Bones on Broadway"), suggestions for program use, and/or correlated reproducible worksheets. Although the guide's outline of the program infers that the information presented in each "lab" might be reviewed by the following activity, this is true for only one of the three outline pairs.

STRENGTHS: Information is presented in a colorful, cheerful, and varied format that will appeal to the targeted age group. Animated illustrations help explain some of the concepts covered.

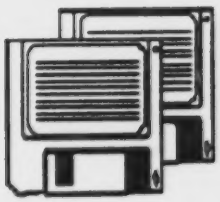
USES: THE SKELETAL & MUSCULAR SYSTEMS will supplement the introduction or review of classroom instruction about bones, joints, and muscles. Teachers will need to identify the scope of "Bones on Broadway" and familiarize students with terms prior to their use of the section. Teachers may want to involve the entire class with sections of the program by using large screen projection.

IR



Advisory List of

Computer Courseware



Media Evaluation Services
Department of Public Instruction

September 1990
Raleigh, North Carolina

CLIFFORD'S BIG BOOK PUBLISHER. Scholastic, Inc. 2
Communication Skills Grades K-2
CLIFFORD'S BIG BOOK PUBLISHER allows students to combine text and graphics to create their own original illustrated books.

LISTEN AND LEARN: READING COMPREHENSION LEVEL 3. Houghton Mifflin Company. 3
Communication Skills Grades 3-4
READING COMPREHENSION LEVEL 3 helps students practice eight reading comprehension skills.

READY-SET-READ: INFERENCE. Continental Press 5
Communication Skills Grades 3-5
READY-SET-READ: INFERENCE provides students with drill and practice exercises in that reading skill.

EXAM IN A CAN: ALGEBRA I. ips Publishing, Inc. 7
Math Grades 7-12
EXAM IN A CAN: ALGEBRA I is a test-generating utility that uses a program algorithm to produce items based on teacher-selected objectives in twelve topic areas.

GRAPHICS CALCULATOR. Conduit 8
Math Grades 9-12
GRAPHICS CALCULATOR enables teachers and students to explore graphs with three display modes that plot graphs, make tables of values, and perform calculations.

PLAYING WITH SCIENCE: MOTION. Sunburst Communications, Inc. 9
Science Grades 5-9
PLAYING WITH SCIENCE: MOTION uses an ultrasonic motion detector connected to a computer to help students explore relationships between distance, time, and velocity.

MECC DATAQUEST: LATIN AMERICAN DATABASE. MECC 11
Social Studies Grades 7-12
MECC DATAQUEST: LATIN AMERICAN DATABASE provides a database of Latin American nations and dependencies from which students select and analyze information in thirty-five categories.

A+: U.S. GEOGRAPHY. American Educational Computer 12
Social Studies Grades 5-12
U.S. GEOGRAPHY is a drill and practice game in which students answer questions about capitals, important cities, landmarks, and physical characteristics of the nation's states and regions.

PUBLISH IT! 3. Timeworks, Inc. 13
Utility Grades 5-12
PUBLISH IT! 3 is a powerful desktop publishing tool for the Apple II family of microcomputers.

IR 014 680

COMMUNICATION SKILLS

Title: CLIFFORD'S BIG BOOK PUBLISHER
Publisher: Scholastic Inc.
2931 East McCarty Street
P.O. Box 7502
Jefferson City, MO 65102
Copyright: 1990
Price: $39.95
Contents of package: 1 program disk, 1 clip art/fonts/background disk, guide 60 p.
Systems (* indicates version previewed): Apple II family*, MS-DOS
Equipment required: microcomputer (128K), 1 disk drive (2 optional), monitor (color preferred), printer (preferred), blank disks
Grade level: K-2; teacher use
Goals: Communication Skills

Grade K	Reading/Literature	CG 1-6
	Writing	CG 1, 6, 8, and 9
Grade 1	Reading/Literature	CG 1-6, 12-14, and 16
	Writing	CG 1, 7, 8, and 9
Grade 2	Reading/Literature	CG 1 and 3-9
	Writing	CG 1, 7, 8, and 9

CLIFFORD'S BIG BOOK PUBLISHER allows students to combine text and graphics to create their own original illustrated books. Students begin creating their books a single page at a time. The program's introductory menu permits them to recall a page created earlier and stored on a disk or begin a new page. When they choose to begin a new page, students are shown a blank, white workspace on which they will design the first page of their publication. The "Page Menu" allows students to enter text, choose and place clip art, or select a frame. Users enter text using the program's simple word processor that allows simple editing and automatically wraps words. Text is available in five fonts: fancy, large, medium, small, and swirl. Each of the fonts is available in normal, outline, or bold variations. Text can appear beside, under, or on top of graphics depending on which was put on the page first. Clip art is selected from a collection included with the program. It is divided into three categories: backgrounds, pictures, and frames. Students select a specific picture by choosing one of approximately eighty pictures divided into eleven different thematic groupings (e.g., animals, Clifford, and fairy tales) from the "Clip Art Menu." The chosen piece of clip art appears on the workspace along with any previously entered text or art. By pressing the space bar, users can browse through the different pictures in the thematic grouping. The picture can be moved about on the screen and flipped horizontally or vertically. The thirty-one background graphics are scenes that cover all or half of a page. Frames, which come in five styles, create a border effect around the edges of the page. The program's producer claims that it is compatible with clip art graphics from Scholastic's SUPER PRINT program. Pages can be printed in several formats: minipage (4.5" by 6"), standard (8.5" by 11"), big (17" by 22"), and huge (25.5" by 33"). The big page option requires four sheets of paper for a single page of graphics, and the huge option takes nine sheets. Users with access to an ImageWriter II with color ribbon can print their pages in color. Individual pages can be saved onto data disks that are created using the utility segment of the program. Pages saved onto data disks can be recalled for editing or printing.

The guide contains thorough information about the operation of the program. Explanations of each of the menus are illustrated with screen facsimiles. The guide provides good ideas about the use of the program in the classroom and suggests activities. Pictures of all the text fonts, clip art, backgrounds, and frames are included in the guide.

WEAKNESSES: The program allows users to create only one page of text and graphics at a time, and each page of a book must be created and saved as a separate file. To create and print a book, users must design all the pages one at a time, then recall and print them one at a time. This makes actually publishing the book quite time-consuming. The program uses a good deal of paper--even the minipage uses a whole sheet of paper by printing one page per sheet when in fact there is room for four minipages per sheet. If students use a frame over the top of a background graphic, the background graphic will be cut off by the border (and vice versa).

STRENGTHS: The graphics included in the program's clip art and background collections are excellent. The wide choice of print fonts and sizes makes the program flexible for use with a variety of age groups. The four sizes of print allow users to create personalized books or big books. Teachers with limited funds to purchase materials for classroom use can use the program to create their own big books.

USES: CLIFFORD'S BIG BOOK PUBLISHER allows teachers and students to create their own illustrated books. The program can support writing process instruction and publishing skills. As the guide suggests, teachers can use the program to create pictures to support teaching basic concepts usually covered in kindergarten.

* * *

Series Title: LISTEN AND LEARN
Title: READING COMPREHENSION LEVEL 3
Publisher: Houghton Mifflin Company
Educational Software Division
Marketing Department
P.O. Box 683
Hanover, NH 03755
Copyright: 1990
Price: $198.00
Contents of package: 24 program disks (5.25"), guide 61 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer (128K), 1 disk drive, monitor (color preferred), Echo II (Apple IIe) or Cricket (Apple IIc) speech synthesizer, printer (optional), 24 blank disks
Grade level: 3-4
Goals: Communication Skills Grade 3 Reading CG 2, 4, 5, 7, 10, and 11
Grade 4 Reading CG 1, 2, 5, 7, 8, and 9

READING COMPREHENSION LEVEL 3 helps students practice eight reading comprehension skills (sequencing, predicting outcomes, use of context, following directions, drawing conclusions, cause and effect relationships, main idea/details, and inferences). Each of the eight lessons covers a single skill and contains three story-based activities that are progressively more difficult. The activities consist of answering questions about a children's story that students read. As

students first begin to use the program, they can see an optional "Prior Knowledge" screen that lists important vocabulary words used in the story. After a review of vocabulary words, students see a screen that displays the text of the story and a color picture of a scene from the story. Each story contains fifteen to seventeen of these story screens with about three paragraphs of text per screen. If students do not recognize a word as they read the text, they can move the cursor to the word and ask that it be pronounced. If the word has not been introduced before in the LISTEN AND LEARN series, the computer's speech synthesizer will pronounce it. After reading the text students are given a multiple-choice question. Usually one question is asked on each page of the story. If they answer correctly, students are allowed to proceed, and sometimes, at the highest levels of the program, students see a short segment explaining why the answer was right. As a reward, the picture becomes animated, and the computer emits sounds. Incorrect answers prompt the program to highlight text that contains the information students need to correctly answer the question and give students a second chance to answer. If students miss the question a third time, the program displays the correct answer along with an explanation of why that answer was correct. At the end of each story the program displays a list of book titles suggested for further reading on the topic. This list of books can be printed.

The "Teacher Options" menu allows the program to be customized. The first menu choice, "Set Story Options," permits teachers to turn the speech component of the program on or off, limit the number of spoken words to between 1 and 254 per story, and choose whether to present questions and answers and "Prior Knowledge" screens. The "Print Letters" option generates letters to parents describing the reading skills being covered in class and suggesting titles of books that students could read to help reinforce those skills. "Review Story" permits teachers to view the text of stories and questions without graphics, animation, or speech. Teachers can also review and delete student records from "Teacher Options" as well as view the program's system of tracking student progress. The recordkeeping system provides a report for each student, listing how many questions were attempted and how many were answered correctly. The system also records how far within a lesson students progressed during their last session and how long a student spent on each page of the story. Recordkeeping shows each word that students asked to have pronounced and separates those words into three categories (Levels 1, 2, and 3) which correspond to the three levels of the LISTEN AND LEARN series. All records can be printed for an individual or for a whole class.

The guide is extremely thorough and covers the philosophy and objectives of the series, shows how each lesson is structured, explains how to operate the program, describes which skills are covered in each story and at what level of difficulty, gives correlations with four other reading textbooks (Houghton Mifflin, HBJ, Ginn, and Scott Foresman), suggests a lesson plan for each story with follow-up activities, lists vocabulary for each story, and lists titles for all books included on the "Parent Letter" bibliography.

WEAKNESSES: Sound associated with the animation (not the sound from the speech synthesizer) is of poor quality and is inappropriate for the context of the picture and animation. The speech synthesizer pronounces only the words introduced at this third level of the series. This assumes that students have mastered all vocabulary introduced at previous levels and that students have worked through the first two levels of the series. Text is crowded onto the screen (especially in the question boxes), making the screen visually confusing at times.

STRENGTHS: When students miss a question, the program takes them back to the portion of the text where the correct answer can be found and highlights the relevant portion of the text. By using popular children's literature, the program encourages students to read quality literature. It also suggests titles of other good books. By pronouncing words that may be unfamiliar in written form, the speech synthesizer helps students recognize words they may already have in their listening vocabulary.

USES: READING COMPREHENSION LEVEL 3 is most effective when used in conjunction with the basal textbook's coverage of the same skills. For teachers using an integrated language approach, the stories provide a good springboard for follow-up activities in discussion or writing. Students who have used the first two levels of the series will be less affected by the program's failure to pronounce all words.

* * *

Series Title: READY-SET-READ
Title: INFERENCE
Publisher: Continental Press
520 East Bainbridge Street
Elizabethtown, PA 17022
Copyright: 1990
Price: $39.95
Contents of package: 1 program disk, 1 backup disk, 4 worksheet masters, 1 student recordkeeping form master, guide 16 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer (128K), 1 disk drive, monitor (color preferred), printer (optional)
Grade level: 3-5
Goals: Communication Skills Grade 3 Reading/Literature CG 7
Communication Skills Grades 4-5 Reading/Literature CG 6

READY-SET-READ: INFERENCE provides students with drill and practice exercises in that reading skill. The program's three activities challenge students to use inference skills to answer questions. The program begins by presenting a menu displaying pictures that represent the three activities. Students press the space bar to move an arrow onto their choice. At the beginning of each activity, students are offered an opportunity to "see a lesson." A sample question is presented and explained step by step. In each case the student is told to read the sentence, look for clues, and choose the answer that best fits the clues. In the first exercise, "What Is Needed?," students see pictures of three items. Text at the top of the screen presents a question that can be answered by choosing one of the three pictures. For example, students are told "Pete broke his leg. He walks very slowly. What does Pete need?" The three pictures show a cane, ice skates, and a bicycle. Students must infer that Pete's broken leg is causing his slow pace and that a cane would help him walk faster. Another example is the problem "My cat is in the tree. Dad will get her down. What does Dad need?" Students choose from a ladder, a hammer, and a saw. While the cat could be extracted from the tree using a saw, the best possible answer is to use a ladder. In "What Is Missing?" students are presented with a letter written from one friend to another describing some event. The program shows the text of the letter on the screen with a section torn out and a keyword missing. Students are asked to read the letter and choose the missing word from three words on the

screen. When students make the correct choice, the word moves over to complete the letter. If the wrong answer is selected, a message tells students to read the clues and try again. The portion of the text that narrows the choice down to the correct answer is highlighted for the student. After a second wrong answer, the correct one is given. The "Detective Game" is similar to "What Is Missing?" except that the question is not in the letter format (i.e., no salutation and closing). At the end of each activity, the program displays the number of correct answers out of the total number of questions asked. If seventy percent or more were answered correctly, an animated graphic appears, such as a dog digging for a bone. If less than fifty percent were correct, a message directs the student to the teacher for help. A screen at the end of a session lists each activity attempted, the number of times taken to answer each question, and the number of correct answers. Students can print this report or copy it onto a recordkeeping form provided by the producer. The guide is very brief, but it does present objectives and an overview of the program and make suggestions for classroom use. A separate packet contains the duplicating masters for student recordkeeping and four worksheets.

WEAKNESSES: The sections "What Is Missing" and "Detective Game" are in essence the same activity although they are listed as separate ones. The program has no permanent recordkeeping. Students or teachers must fill out a recordkeeping form provided in the guide. The worksheets cover the same skills as the program but contain very little of the program's visual appeal.

STRENGTHS: The program requires students to read carefully and consider keywords or phrases in order to select the correct answer. Sometimes more than one answer could be acceptable, but there is always an answer that best fits the clues. This requirement to select the best answer is good practice for standardized tests. The ability to print results allows for independent student work.

USES: READY-SET-READ: INFERENCE is useful as an enrichment or reinforcement activity after inference has been introduced, discussed, and practiced. Third through fifth grade students could use it as an independent activity. Once the teacher or assistant gives instructions on how the program works, an adult is really not needed.

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MATH

Series Title: EXAM IN A CAN
Title: ALGEBRA I
Publisher: ips Publishing, Inc.
31316 Via Colinas
Suite 110
Westlake Village, CA 91362
Copyright: 1989
Price: $89.95
Contents of package: 2 program disks (Apple) and 2 program disks (IBM), guide 8 p.
Systems (* indicates version previewed): Apple II family*, IBM-PC
Equipment required: microcomputer, 1 disk drive, monitor, printer
Grade level: 7-12
Goals: Teacher utility

EXAM IN A CAN: ALGEBRA I is a test-generating utility that uses a program algorithm to produce items based on teacher-selected objectives in twelve topic areas: integers and rational numbers; introduction to algebra; exponents; linear equations; polynomials; factoring polynomials; relations, functions, and graphs; systems of equations; inequalities and absolute value; rational and radical expressions and equations; and quadratic equations. Teachers make a test by specifying for each question the number of the objective to be tested (from the canned list) and the response format (conventional multiple choice or free response). The program creates and prints the appropriate problems. Although sample problems for each objective are not shown in the guide or on the screen, teachers can print representative problems in each of the major topic areas as well as an abbreviated user guide and the topic/objectives list. Tests consist of up to thirty items (or sixty with the IBM version). The program can print many alternate forms testing the same objectives. Print format options include test questions only; test questions and a key; and questions, an answer sheet (with an optional format for machine scoring), and a key. The Apple version saves the last test printed, which teachers modify for a new test. Some program features differ slightly in the IBM version. The guide provides operating instructions and program description.

WEAKNESSES: The program does not display problems on the screen.

STRENGTHS: This program provides a convenient way to generate multiple tests covering the same objectives. Where student attendance is erratic and teachers must make multiple tests for students who have been absent, this is a great timesaver.

USES: EXAM IN A CAN: ALGEBRA I supports many standard objectives. The program enables teachers to produce criterion-referenced tests in multiple forms as well as worksheets designed to meet individual student needs.

* * *

Title: GRAPHICS CALCULATOR
Publisher: Conduit
The University of Iowa
Oakdale Campus
Iowa City, IA 52242
Copyright: 1988 (released 1989)
Price: $80.00
Contents of package: 1 program disk, 1 backup disk, quick reference card, guide 173 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer, 1 disk drive, monitor (color optional), printer (optional)
Grade level: 9-12
Goals: Mathematics Grades 9-12 Algebra II CG 2 and 15
Advanced Mathematics CG 1 and 15

GRAPHICS CALCULATOR enables teachers and students to explore graphs (function, parametric equation, and polar) with three display modes that plot graphs, make tables of values, and perform calculations. Designed to serve as an integrated "function spreadsheet," the display modes use the same functions (built-in BASIC or user-defined), variables, and parameters. Users work in a single mode or move among the modes to explore a particular problem from several related perspectives. The graphics mode plots graphs of functions or parametric equations on either Cartesian or polar coordinates. The program displays values for variables being plotted. A zoom feature enlarges any portion of the graph, and a project/plot command provides an arrow tracer to demonstrate the function, point by point, with any given delta value. The array mode allows users to scroll through tables of function or equation values (after choosing a function, starting value, and incremental amount). Incremental or starting values can also be changed. The calculator mode works like a scientific calculator and can be programmed to repeat a sequence of operations. It also accepts values from the graphics or display modes for further manipulation. The three modes have many additional features delineated in the guide, and extensive help menus are available. Users can print displays or save them to disk for later classroom demonstration or study over a period of time.

The guide is divided into three sections. Part one provides an overview and quick start for introductory or novice use. Part two focuses in more detail on examples and applications, elaborating on program features through suggestions for classroom use, relating parts of the program to each other, and providing step-by-step instructions for sample displays. Appendices in part three explain special keys and commands; review BASIC syntax and program format for expressions, functions, parameters, and variables; and provide technical reference for error messages, printing, and computer arithmetic errors.

WEAKNESSES: Reviewers found no significant weaknesses.

STRENGTHS: This program goes beyond the benefits of a programmable calculator to provide students with a visual, manipulative context for exploring relationships between algebra and geometry. Cartesian and polar graphs are clearly drawn and easy to interpret. Numerical values are accessible. Graphs can be traced and analyzed with ease (e.g., for maximum and minimum values). The program saves data for later use or demonstration, with pauses and labels for easy reference. The guide is extensive and uncommonly well written, with careful presentation of both the breadth and depth of the program that enables it to be used quickly by novices or explored more intensively by veterans.

USES: GRAPHICS CALCULATOR has broad applications. The program touches most aspects of algebra II, precalculus, and calculus. Enterprising teachers in lower grades (who have time and energy to deal with the user-friendly but extensive guide) could use the program for demonstration or student exploration. This software is highly appropriate for a mini-unit on generating and analyzing graphs and data, small group work, or classroom demonstration.

* * *

SCIENCE

Series Title: PLAYING WITH SCIENCE
Title: MOTION
Publisher: Sunburst Communications, Inc.
39 Washington Avenue
Pleasantville, NY 10570
Copyright: 1989
Price: $165.00
Contents of package: 1 program disk (5.25"), 1 backup disk (5.25"), motion detector, guide 110 p.
Systems (* indicates version previewed): Apple II family* (except the Apple IIc)
Equipment required: microcomputer (64K), 1 disk drive (2 disk drives optional), monitor (color preferred), printer (preferred), blank disk
Grade level: 5-9
Goals: Science Grades 5-9 CG 1
Grade 9 Physical Science (Academic) CG 1 and 5
(Applied/Technical) CG 1 and 5
Physics (Academic) CG 1 and 2
(Applied/Technical) CG 1 and 2

PLAYING WITH SCIENCE: MOTION uses an ultrasonic motion detector connected to a computer to help students explore relationships between distance, time, and velocity. The motion detector is a transducer that emits high frequency sound pulses that travel to objects and are reflected. The transducer in its receiving mode then records the reflected sound and calculates the time span between transmission and reception. The computer uses this time span information to accurately determine the distance between the motion detector and objects. Since sound pulses are emitted in rapid sequence, the distance and velocity of objects moving toward or away from the detector can be determined. This information is presented on the computer's screen in line graphs. Students become familiar with the operation of the program and the motion detector in "Match the Motion." In this activity students examine ten different line graphs that represent objects moving toward or away from the motion detector. The graphs' vertical axes display distance in meters from the motion detector, and the horizontal axes display time in seconds. Students are challenged to reproduce the graphs by moving toward or away from the motion detector at a rate that matches the data line. Before each "Match" students are told how long the match will last (ten to thirty seconds) and how far away from the detector they should stand in the beginning. The computer displays a three-second countdown before it begins to record information from the motion detector. As students move forward and backward, a second line representing their movement appears on the graph. The graph can be printed after completing the match. In "Make a Challenge" students or teachers create a graph that represents distance from the detector or velocity

of an object toward or away from the detector. Users can vary the distance scale (vertical axis) from zero meters to seven meters. The time scale (horizontal axis) can be varied from zero to thirty seconds. "Take a Challenge" allows users to attempt to reproduce the line appearing on one of the "Make a Challenge" graphs. An additional option in "Take a Challenge" is "Analyze Results," which allows users to adjust the scale of the graphs in order to examine the two lines more closely. The "See Data" option allows users to compare the two data lines on a point-by-point basis. "Experiment" permits students to collect and examine data on their own. Using the motion detector to gather data, students can compare two separate data samples. Each data set is plotted as a separate line on one graph. Students can choose to display graphs showing position, velocity, or acceleration of objects. One, two, or all of these graphs can be displayed simultaneously on a single screen. Users can adjust the range of these graphs to isolate and examine data in more detail. Users can clear one of the two data lines and replace it with new data. "See Data" displays time and distance information for both data lines. For example, at 25.04 seconds into the experiment, data line "A" shows an object 2.34 meters from the detector, and data line "B" shows an object 2.68 meters from the detector. Reports printed from this section of the program can be customized to report data to the hundredth of a second or meter. Printed reports can be requested in normal size, double size, or "wall chart" size.

The "Utilities" section of the program provides teachers with several handy tools. The motion detector can be calibrated for use with individual computers using "Calibrate Detector." Other tools include formatting data disks and copying or deleting data and challenge files. "Program Controls" allows teachers to grant or restrict access to sections of the program. For example, the "Experiment" section can be removed from the main menu until students are familiar with the operation of the program.

The guide contains detailed explanations of exactly how the program works and how teachers might incorporate it into different levels of science courses. It also includes fifty-four pages of lesson/experiment guides to assist teachers in using the program in the classroom.

WEAKNESSES: Reviewers found no significant weaknesses in the program.

STRENGTHS: The motion detector is quite accurate and can be calibrated to different computers. The guide provides excellent student activities and background information for teachers. The instant feedback provided by graphs helps explain the differences between the difficult concepts of acceleration and velocity.

USES: PLAYING WITH SCIENCE: MOTION is an excellent program for use with a small number of supervised students experimenting with motion. Teachers will find that this program provides a new and exciting approach to working with the concepts of distance, velocity, acceleration, and graphing.

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SOCIAL STUDIES

Series Title: MECC DATAQUEST
Title: LATIN AMERICA
Publisher: MECC
3490 Lexington Avenue North
St. Paul, MN 55126
Copyright: 1989
Price: $59.00
Contents of package: 1 program disk, 1 backup disk, guide 71 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer, 1 disk drive, monitor, printer (optional)
Grade level: 7-12
Goals: Library/Media & Computer Skills Grade 8 CG 6

MECC DATAQUEST: LATIN AMERICA provides a database of Latin American nations and dependencies (Puerto Rico and French Guiana) from which students select and analyze information in thirty-five categories that reflect geographic, demographic, economic, environmental, political, social, and cultural conditions. Students begin the search process by designating a category of interest from an on-screen list. Information in each category is in word or number form. In word-based categories students make further selections from subdivisions listed (such as alpine, desert, steppe, and others for the Climate Zones category). In number-based categories students specify numerical parameters (such as equal to, greater than, or less than user-entered values). The category summary provided as a reproducible handout in the guide includes succinct information on the categories, explains their subdivisions, and often provides baseline numbers (such as world average death rate) that help students specify parameters. Students perform an "or" search by selecting two subdivisions within a single category. A more restrictive "and" search involves designating items in different categories. After selecting records, students instruct the computer to sort either alphabetically or numerically, in regular or reverse order. Multiple sorts are accomplished by progressive sorting that begins with the least important category. The program prints information or displays it on the screen in report style (with category clusters down the page) or table form (a row and column display). The guide includes an introduction, instructional objectives for social studies and information management, program description, suggestions for classroom use (preparation, preliminary exploration, a model for research, steps in the search process, and follow-up activities), student handouts, and appendices. The handouts provide an overview of databases in general, a brief guide to program use, a category summary, suggested search topics, search worksheets, and a map. The appendices include a bibliography and instructions for using the MECC DATAQUEST COMPOSER to add United States data for comparison or to modify the existing database.

WEAKNESSES: At several points (e.g., when selecting, sorting, or printing), students must choose (sometimes with the return key, sometimes with the space bar) from the same list of categories. The program does not simplify or summarize the search as it progresses, and the repetition of the category list can be confusing. Students without a clear vision of program sequence may find experimentation unrewarding or tedious. The program does not clear previously designated sorting categories if users initiate a new search.

STRENGTHS: This program offers typical database advantages: flexibility, breadth and specificity of information, and natural integration of content, research methods, and thinking skills. The guide is an excellent resource for teachers and provides a useful research model as well as suggested search topics.

USES: MECC DATAQUEST: LATIN AMERICA supports the social studies curriculum where the focus is on this cultural region or world geography. The program can be used for whole class demonstrations, small group projects, or individual research. The category summaries and research model in the guide provide helpful support.

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Series Title: A+
Title: U.S. GEOGRAPHY
Publisher: American Educational Computer
7506 N. Broadway Extension
Suite 505
Oklahoma City, OK 73116
Copyright: 1989
Price: $39.95
Contents of package: 1 program disk, 1 backup disk, guide 14 p.
Systems (* indicates version previewed): Apple II family*, IBM-PC, Tandy 1000
Equipment required: microcomputer, 1 disk drive, monitor (color optional), printer (optional)
Grade level: 5-12
Goals: Social Studies Grade 5 Knowledge CG 1

U.S. GEOGRAPHY is a drill and practice game in which students answer questions about capitals, important cities, landmarks, and physical characteristics of the nation's states and regions. The program provides thirty-five segments of ten questions each, and teachers can create up to ten additional quizzes. The questions in each segment are the same with each use, but they may be framed in free response or multiple-choice format. In either case, the student must type the word(s) of the response spelled correctly. Students may be asked to name the capital of Maine, for example, or the river that provides electric power in New Hampshire. Each answer has an assigned point value (with decreased values for incorrect responses). The program displays the proper answer after a student makes three incorrect responses. At the end of the ten-question sequence, students review any missed questions and play "Letter Lightning," a bonus game in the "Wheel of Fortune" tradition in which players activate a computer generated spinner to disclose letters in a mystery phrase broadly related to program content. The number of spins is determined by accumulated point total, with players returning to the same bonus game after each question sequence until they identify the phrase. On-screen instructions for program operation are provided. The program posts scores on completed segments for any of five students registered at a given time. The guide, generic for the series, provides information on operating the program, creating new lessons, and printing.

WEAKNESSES: The manual provides little information specific to program content (i.e., list of question sets or sample questions) and omits relevant information such as how many students' records can be saved and how (or whether) teacher problem sets can be erased. The program prints only the questions in a segment, not answer choices or an answer key. An apparent glitch in printing teacher-added quizzes deletes some letters on the left margin.

STRENGTHS: The program's coverage is broad, and teachers can make customized quizzes easily. The "Letter Lightning" game adds interest and teaches phrases related to national geography and culture.

USES: U.S. GEOGRAPHY reinforces factual information included in standard curricula. It is appropriate for individual review or whole class use with a projection panel.

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UTILITY

Title: PUBLISH IT! 3
Publisher: Timeworks, Inc.
444 Lake Cook Road
Deerfield, IL 60015-4919
Copyright: 1990
Price: $129.95
Contents of package: 2 double-sided program disks (5.25"), 2 double-sided font/art disks (5.25"), 1 program disk (3.5"), 1 font/art disk (3.5"), Reference Card, guide 193 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: enhanced microcomputer (128K; more memory preferred), 1 disk drive (2 preferred), monitor, printer (preferred), mouse or joystick
Grade level: 5-12; teacher use
Goals: Communication Skills Grades 5-8 CG 6
English I-IV CG 5

PUBLISH IT! 3 is a powerful desktop publishing tool for the Apple II family of microcomputers. The program produces professional-looking documents such as newsletters and reports that feature multiple columns of text, graphics, and a variety of type styles and sizes. The program features a graphical interface similar to that used by the Apple Macintosh computer. Creating a document begins with the program's WYSIWIG (What You See Is What You Get) workspace that allows users to see text and graphics on the screen as they will appear when printed. As students begin designing a document, the outline of a blank page is shown on the screen. Prior to entering text or graphics, users select a format for the document. The format consists of up to four columns of text and areas where pictures will appear. The program allows page formats to be copied from page to page or each page to have a different format. A row of tool icons located to the right of the blank workspace represents options that allow users to work with text or graphics, link text from one column or page to another, insert page numbers, and jump from page to page within a document. The program includes a simple word processor that allows students to enter text directly onto a document. Users can insert pictures from the clip art collection included with the program.

A command bar above the document workspace features pull-down menus that present the program's different commands and options. "File" allows users to open existing files or create new ones, import text from other word processing programs (ASCII text, APPLEWORKS, and BANKSTREET WRITER), get pictures from PRODOS or DOS 3.3, view documents prior to printing, and print documents. "Edit" provides commands for editing text such as search and replace, cut and paste, and

find. "Font" permits students to format text using different typefaces (fonts), bold print, and subscripts and superscripts as well as allowing them to underline and italicize. In "Format" users set justification, line spacing, and margins. Using the "Page" menu students establish general formatting standards and add or delete pages of a document. Blocks of text and graphics are treated by the program as "objects" that can be manipulated as if they were single units. With the "Objects" menu users can cut and paste objects on a document, align objects to each other and to the page's margins, and allow text to flow around, over, or under graphics. The "Special" menu allows users to select one of four views of a document: normal size, double size, half size, and reduced to fit all of the document onto the screen. The "Help" menu is divided into sections that cover different aspects of the program's operation such as text, objects, files, printing, and page layout. Documents can be printed on laser printers or dot matrix printers.

The guide provides very thorough coverage of the program's many options. A tutorial leads beginners through the program's main features, allowing users to create and print a document in just a few minutes. A section of the guide is dedicated to general information about page design. Printed samples of type styles and clip art are included in the guide.

WEAKNESSES: The program works on Apple computers with 128K of memory, but users will experience delays while the computer slowly redraws on-screen pages after each change. This is not an unusual problem when using desktop publishing programs on computers with relatively small memories.

STRENGTHS: The program is easy to use and works with a variety of word processing and graphics programs. Another asset is the range of computers that can run the program and retain the functions that are normally found only in programs for much more powerful computers.

USES: PUBLISH IT! 3 is a useful and powerful tool for creating documents with great visual appeal, supporting the publishing component of writing process instruction. Students can easily create professional-looking reports and stories. Teachers can use PUBLISH IT! 3 to create attractive classroom materials or class newsletters for parents.